

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

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1. (Previously Amended) A solar cell, comprising:
a pair of electrodes; and
a titanium dioxide semiconductor which is disposed between the electrodes, the titanium dioxide semiconductor having a fractal structure and defining a surface and an interior, the surface and the interior of the titanium dioxide semiconductor being formed with pores, and the titanium dioxide semiconductor being arranged so as to form a rectification barrier with respect to at least one of the pair of electrodes.
 2. (Original) The solar cell as set forth in claim 1, wherein said rectification barrier is formed by contacting the titanium dioxide semiconductor with at least one of said pair of electrodes, and the rectification barrier has a diode characteristic.
 3. (Previously Amended) The solar cell as set forth in claim 2, wherein the rectification barrier is the shottky barrier being formed by contacting the titanium dioxide semiconductor with at least one of said pair of electrodes.
 4. (Previously Amended) The solar cell as set forth inn claim 2, wherein the rectification barrier is the PN junction being formed by contacting the titanium dioxide semiconductor with at least one of said pair of electrodes.
 5. (Previously Amended) The solar cell as set forth in claim 1, wherein the electrode, with which said titanium dioxide semiconductor forms the rectification barrier, is formed in such a way as to penetrate into the surface of the titanium dioxide semiconductor and the interior thereof.
 6. (Previously Amended) The solar cell as set forth in claim 1, wherein said titanium dioxide semiconductor has a porosity of 5 to 90%.

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7. (Previously Amended) The solar cell as set forth in claim 1, wherein said titanium dioxide semiconductor has a porosity of 15 to 50%.

8. (Previously Amended) The solar cell as set forth in claim 1, wherein said titanium dioxide semiconductor has a porosity of 20 to 40%.

9. (Canceled)

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10. (Previously Amended) The solar cell as set forth in claim 1, wherein the at least one of the pair of electrodes, with which said titanium dioxide semiconductor form the rectification barrier, is formed from a transparent electrode made of ITO, or a metallic electrode made of at least one metal selected from the group consisting of Al, Ni, Cr, Pt, Ag, Au, Cu, Mo, Ti, and Ta.

11. (Previously Amended) The solar cell as set forth in claim 1, wherein the at least one of the pair of electrodes, with which said titanium dioxide semiconductor forms the rectification barrier, includes a solid iodide.

12. (Previously Amended) The solar cell as set forth in claim 11, wherein the at least one of the pair of electrodes, with which said titanium dioxide semiconductor forms the rectification barrier, includes CuI (copper iodide).

13. (Previously Amended) The solar cell as set forth in claim 11, wherein the at least one of the pair of electrodes, with which said titanium dioxide semiconductor forms the rectification barrier, includes AgI (silver iodide).

14. (Previously Amended) The solar cell as set forth in claim 1, wherein the pair of electrodes are formed by vacuum evaporation.

15. (Previously Amended) The solar cell as set forth in claim 1, wherein the pair of electrodes are formed by sputtering.

16. (Previously Amended) The solar cell as set forth in claim 1, wherein the pair of electrodes are formed by printing.

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17. (Previously Amended) The solar cell as set forth in claim 1, wherein said titanium dioxide semiconductor is subjected to visual rays absorbable processing to enable absorption of visible rays.

18. (Original) The solar cell as set forth in claim 17, wherein organic dye is absorbed to said titanium dioxide semiconductor.

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19. (Original) The solar cell as set forth in claim 17, wherein inorganic dye is absorbed to said titanium dioxide semiconductor.

20. (Original) The solar cell as set forth in claim 19, wherein the inorganic dye, being absorbed to said titanium dioxide semiconductor, includes inorganic carbon.

21. (Original) The solar cell as set forth in claim 17, wherein the inorganic dye, being absorbed to said titanium dioxide semiconductor, includes an inorganic matter obtained by dying carbon.

22. (Original) The solar cell as set forth in claim 17, wherein said titanium dioxide semiconductor has oxygen defects.

23. (Previously Amended) The solar cell as set forth in claim 17, wherein said titanium dioxide semiconductor includes impurities that include at least one of Cr and V.

24. (Original) The solar cell as set forth in claim 23, wherein said titanium dioxide semiconductor includes Mo.

25. (Currently Amended) A solar cell unit, comprising:
a solar cell which includes a pair of electrodes, and a titanium dioxide semiconductor disposed between the pair of electrodes, the titanium dioxide semiconductor having a fractal structure and being formed with pores; and
first and second substrates, the solar cell being disposed between the first and second substrates.

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26. (Previously Amended) The solar cell unit as set forth in claim 25, wherein the first and second substrates are arranged so that solar rays enter from one side of one of the first and second substrates, the other substrate being arranged at a side of the one substrate that is opposite to the one side and being coated with a reflection film or having a reflection film thereon.

27. (Previously Amended) The solar cell unit as set forth in claim 25, wherein the first substrate and the second substrate define a space therebetween, the space being filled with an inert gas including argon gas.

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28. (Previously Amended) The solar cell unit as set forth in claim 25, wherein at least one of the first and second substrates being arranged at a side from which solar rays enter, the at least one of the first and second substrates being formed into a transparent substrate or a translucent substrate formed of at least one of glass, plastic and synthetic resin.

29. (Previously Amended) The solar cell unit as set forth in claim 25, wherein at least one of the first and second substrates is arranged at a side from which solar rays enter, the at least one of the first and second substrates having a top surface and a bottom surface, and an anti-reflection film is coated or placed on at least one of the top surface and the bottom surface.

30. (Previously Amended) The solar cell unit as set forth in claim 25, wherein at least one of the first and second substrates is arranged at the side from which solar rays enter, the at least one of the first and second substrates having a top surface, and a light catalyst made of titanium dioxide (TiO_2) is coated on or placed on the top surface of the at least one of the first and second substrates.